バングラデシュのフィラリア症重症化に 関わる生活環境・職業性因子

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バングラデシュのフィラリア症重症化に関わる生活環境・職業性因子

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Background

Geographical repartition of lymphatic filariasis (LF)

* Infection: 120 million people in 72 countries (WHO,2010)
* Low human development index of 94% of those countries

(Cristine Bonfim et al, 2009)

* Second biggest factor related to impairment (WHO, 1995)

Situation in Bangladesh

* Endemic area: 34 of 64 districts
* Risk of infection: 70 million people
* Infection: 20 million people

(MOHFW Bangladesh, 2010)

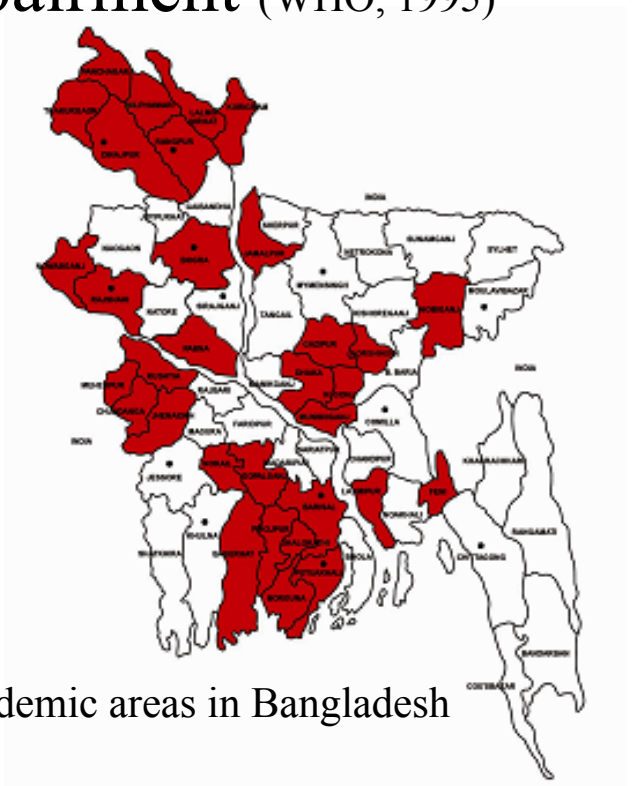


Figure1) Map of endemic areas in Bangladesh

Background

Symptom of LF

Background

Symptom of LF

Background

Symptom of LF

1. Asymptomatic

2. Acute episodic Adenolymphangitis (ADL)

   Two distinct clinical syndromes (Dreyer G et al.,1999)
   a) Acute filarial lymphangitis (AFL)
   b) Acute dermatolymphangioadenitis (ADLA)

   In filariasis-endemic areas, ADLA occurs much more commonly than AFL.

3. Lymphedema 4. Elephantiasis

Background

Eliminate LF by 2020 as started in a WHO initiative

Elimination of LF by 2015 in Bangladesh

Prevention

To interrupt transmission of infection by Mass Drug administration (MDA)

Treatment

To alleviate and prevent both the suffering and disability by morbidity control (MC)

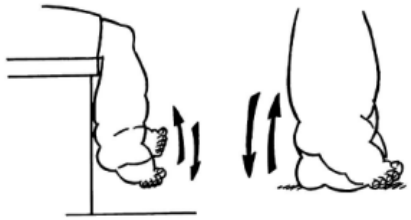
Background

3 BASIC TREATMENTs Daily life lymphedema care

Skin care
for prevention against
secondary infection

Exercise
for the good flow
of lymph

Elevation
for the good flow
of lymph



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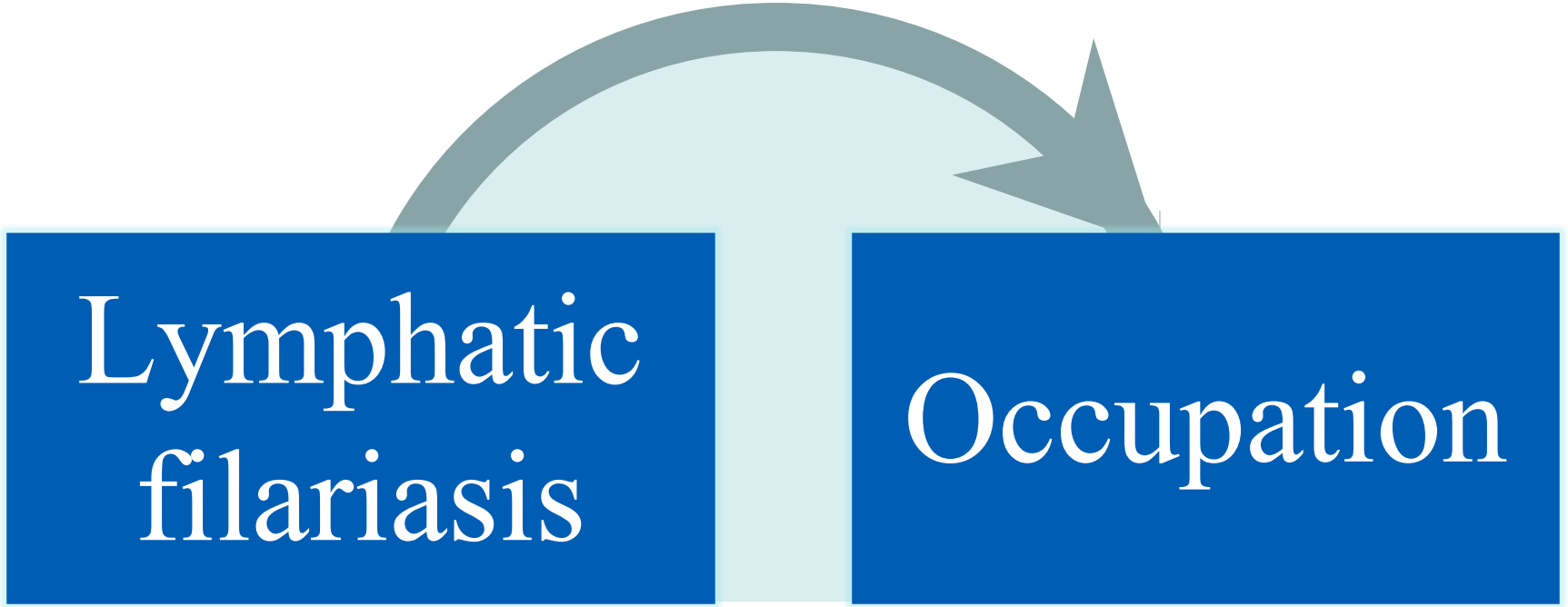


* Impairment of occupational activities and travel and domestic activities (K. D. Ramaiah et al., 1997)
* Work fewer hours, which is likely to reduce their productivity, change to less remunerative activities, give up work (K. D. Ramaiah et al., 1997)

Background

Background

Patient's occupation

Unemployed
only 1.6% of patients

(Moazzem Hossain et al. , 2007)

Main occupation
* Housewife
* Day laborer
* Agriculture
* Business

Occupation	Male	Female	Total	
	#	#	#	%
Housewife	17	191	208	37.2%
Day laborer	68	19	87	15.6%
Agriculture	70	5	75	13.4%
Business	57	7	64	11.4%
Old	18	20	38	6.8%
Driving	21	0	21	3.8%
Service (in country)	8	6	14	2.5%
Maid servant	2	11	13	2.3%
Others	3	8	11	2.0%
Student	5	5	10	1.8%
Unemployed	4	5	9	1.6%
Beggars	2	3	5	0.9%
Kuli (porter)	3	0	3	0.5%
Service (abroad)	1	0	1	0.2%
Baby	0	0	0	0.0%
Total	279	280	559	100.0%

Table1) Patient's occupation

Background

Flow chart on development of filarial lymphedema

(Patrick J. Rammie, 2002)

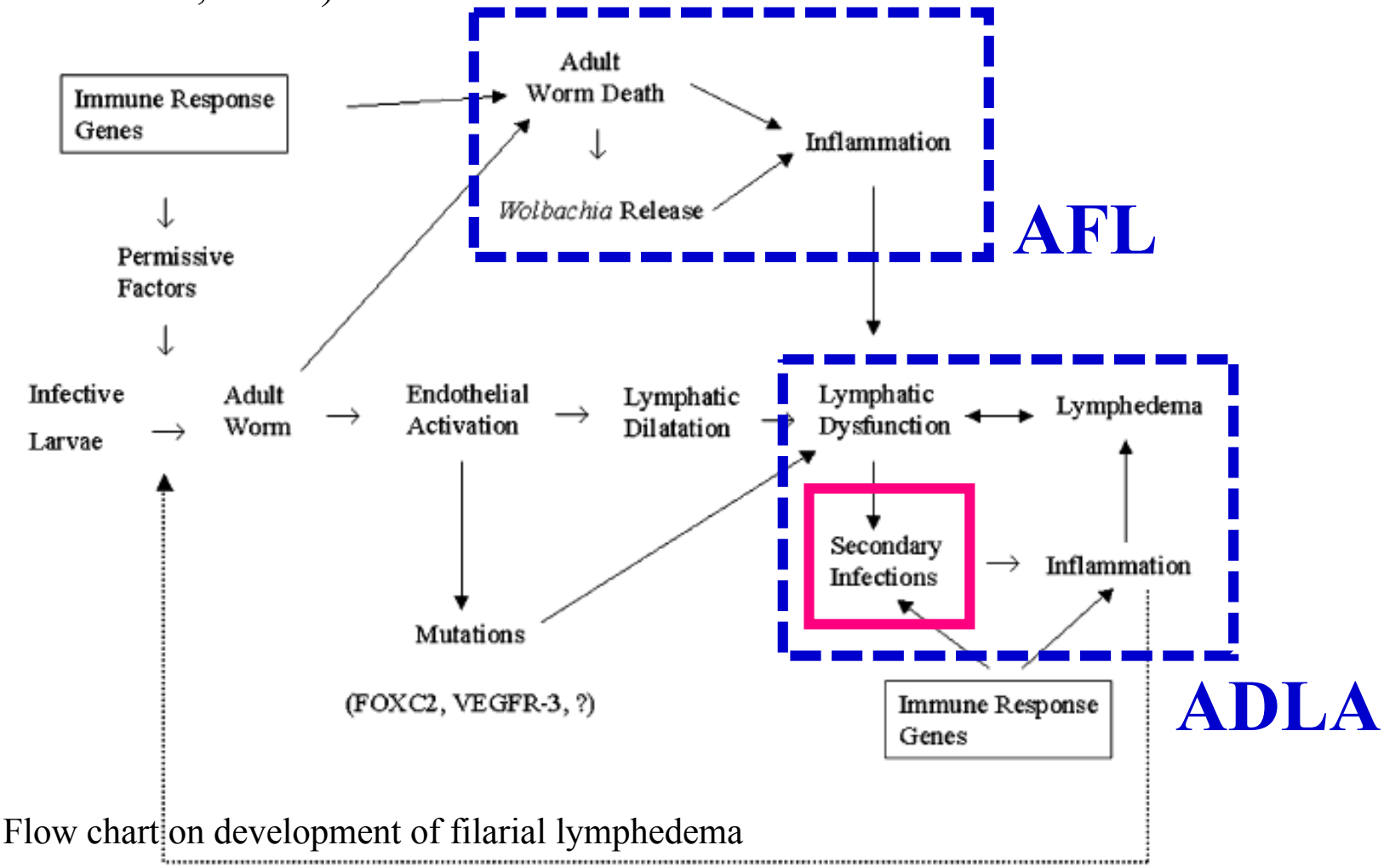


Figure1) Flow chart on development of filarial lymphedema

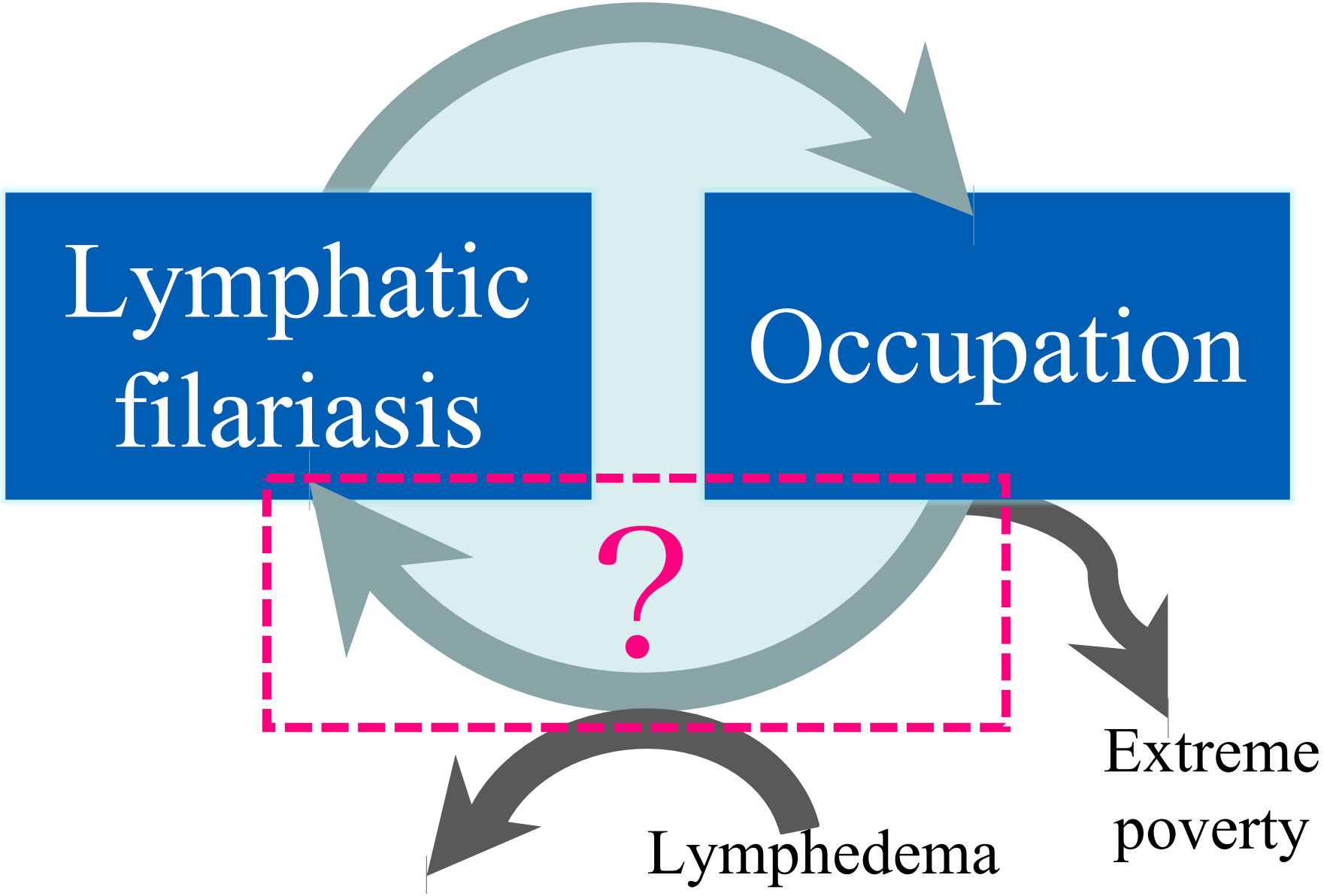
Background

Risk factors for lymphedema related to occupation

(Reference: Lymphedema risk reduction practices, National Lymphedema Network, 2010 / リンパ浮腫がわかる本, Hirota Akio et al., 2006)

1) water (especially above 38.9°C)
2) extreme drying
3) sunscreen
4) extreme cold
5) extreme heat
6) strenuous physical activity
7) prolonging standing, sitting or crossing legs

Background


Lymphatic filariasis
Occupation
?
Lymphedema
Extreme poverty

Objectives

To explore the relationship between occupational factors and the condition of patients due to LF

Develop and provide a working condition
in which risks for progressing of LF is low

Manage the clinical condition
Stabilize their economic situation
Improve adherence to treatment

Methods

Sampling method Formative study

Study area Rural area (Bothlagari union) and urban area (Paurashava) of Nilphamari district

	Bothlagari union (rural area)	Paurashava (urban area)
Population data source : *GR, 2008 / **GR, 2010	* 40,615	** 142,785
The number of LF patients data source : JICA, 2005	153	183
Prevalence (%)	0.4	0.1

Table2) Population and prevalence of LF in study area

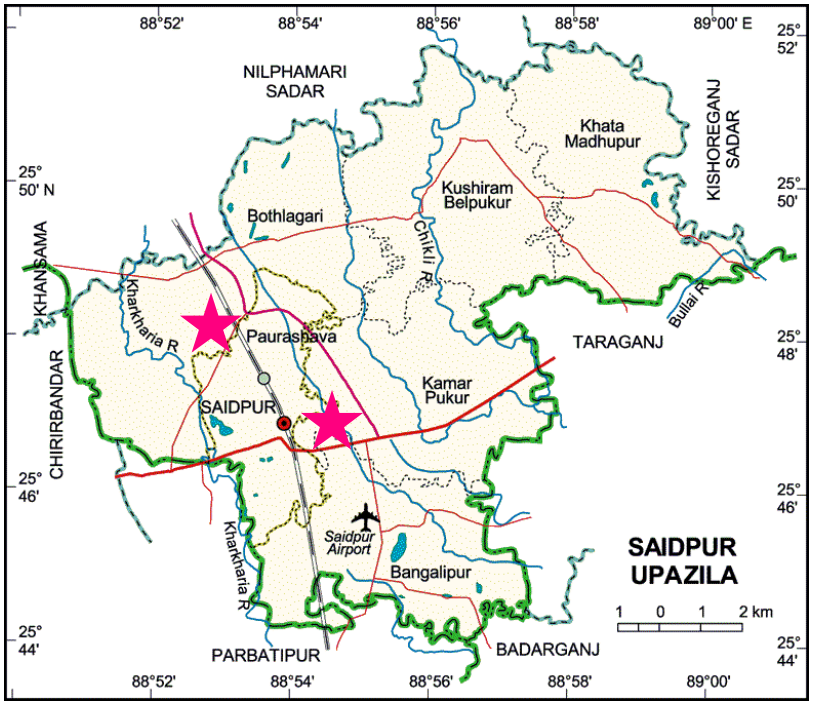


Figure2) Map of study areas in Nilphamari

Study sample 36patients

National Guideline (MOHFW Bangladesh, 2010), Lymphedema Staff Manual (WHO, 2001)

Above 20 years old / Not including students

Methods

Date collection

Two field assistants

Semi-structured interview

Patient's condition, medical history of LF, socio-demographic information including occupation, working conditions

1) Assessment of the patient's condition:
   Modified dreyer staging system

2) Classification of occupations:
   ICDDR, B occupational code

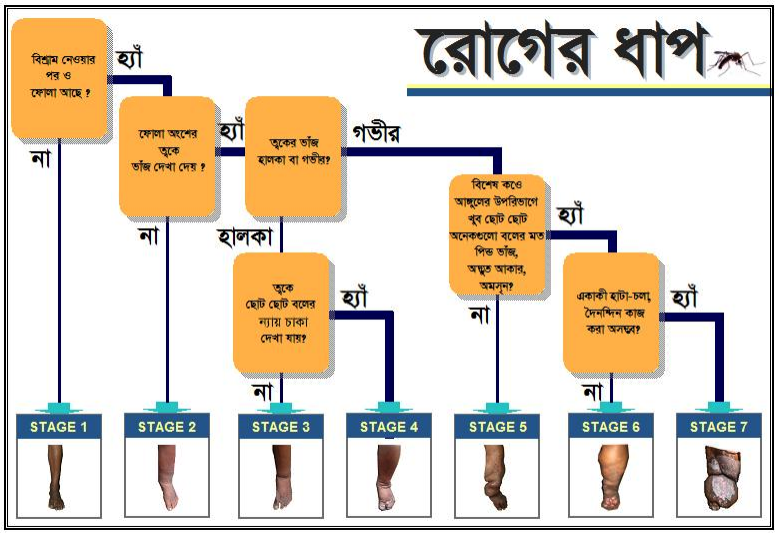


Figure3) Modified dreyer staging system

Methods

Data analysis:

a) Sort by the frequency of ADL experiences

b) Classify by the season (dry season, rainy season, other) of ADL experiences
Describe each characteristic

1. dry (winter) season 2. rainy (summer) season
3. others
⇒categorized by local terminology

Results

a) The less frequently ADL experiences

Occupation	Job tenure	Stage	Comment	Length of illness	Frequency of ADL (Last year)
Barber	59years	Left leg(stage1)		27years	0time
Wood preparation worker	13years	Right leg(stage1)		1month	0time
Housewife	35years	Left leg(stage2)	Right leg(only tingling, not swelling)	30years	0time
Housewife	60years	Left leg(stage2)		15years	0time
Housewife	3years	Left leg(stage3)	Right breast Left breast	10years	0time
Other	5years	Left leg(stage5)	Right leg(only pain) Right hand(only pain)	12years	0time
Maid(order taker)	15years	Left leg(stage5)		30years	0time
Peon	26years	Right leg(stage5)	Left hydrocele(only childhood)	4years	0time
Small business	19years	Right leg(stage6)		42years	0time
Tailor (foot sewing machine)	30years	Left leg(stage2)	Right leg(no pain after treatment)	41years	1time
Maid	2years	Left leg(stage3)		15years	2times
Mobile Hawker	3years	Left leg(stage1)	Right leg(no swelling now)	20years	2-3times
Rickshaw puller	65years	Right leg(stage6)		15years	2-3times
Agriculture worker	20years	Right leg(stage1)		5years	3times
Day labor	40years	Right leg(stage5)	Left leg(stage2)	45years	3-4times

indoor,
non-active

Table3) The frequency of ADL experiences sorted by occupation

Results

a) The more frequently ADL experiences

Occupation	Job tenure	Stage	Comment	Length of illness	Frequency of ADL (Last year)
Auto Rickshaw driver	1year	Left hydrocele （getting big ）		20years	6times
Carpenter	18years	Right leg(stage4)	Left hydrocele	20years	6times
Van puller	20years	Left leg(stage5)		8years	6times
Beggar	6years	Right leg(stage1)	Left leg(stage1)	35years	12times
Self Employed Fishing	12years	Right leg(stage1)		10years	12times
Poultry/Dairy worker	40years	Left leg(stage2)		20years	12times
Electrician	15years	Right leg(stage6)	Right hydrocele(getting small	10years	12times
Agriculture worker	30years	Left leg(stage1)		8years	24times
Mobile Hawker(including bamboo)	28years	Left leg(stage3)	Right hydrocele	8years	24times
Handicraft	6years	Left leg(stage1)	Left hand	8years	2-3times per one month
Poultry/Dairy worker	3years	Right leg(stage6)	Left leg(only pain)	25years	2-3times per one month
Share cropper	50years	Right leg(stage3)		30years	every secoud week
Poultry/Dairy worker	45years	Right leg(stage4)	Left leg(stage1)	30years	not clear
Housewife	25years	Left leg(stage2)		20years	not clear
Housewife	45years	Right leg(stage6)	Left leg(stage1) Right breast(only pain) Left breast(only pain)	Right leg : 30years Left leg : 1year	not clear

outdoor, active

Table3) The frequency of ADL experiences sorted by occupation

Results

b) Season on more frequently ADL experiences

1. dry season 2. rainy season 3. others

Female (50 years old)
Bothlagari union (rural area)
Occupation: Agriculture worker (30years)
Stage: Left leg (stage1)
Length of illness: 8 years

Female (60 years old)
Bothlagari union (rural area)
Occupation: Poultry/Dairy worker(3years)
Stage: Right leg (stage6), Left leg (only pain)
Length of illness: 25 years

Results

b) Season on more frequently ADL experiences

1. dry season 2. rainy season 3. others

Male (55 years old)
Paurashava union (urban area)
Occupation: Day labor (40years)
Stage: Right leg (stage5), Left leg (stage2)
Length of illness: 45 years

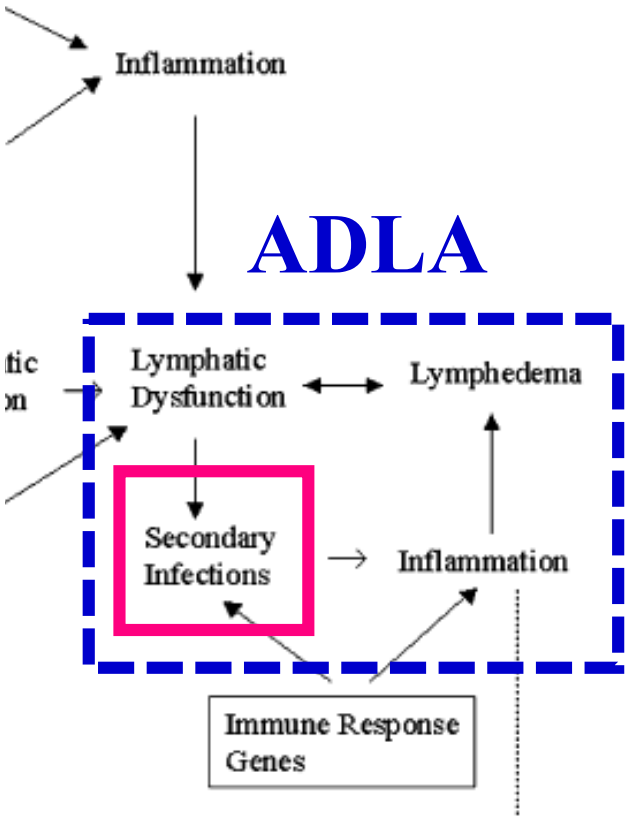
Female (60 years old)
Bothlagari union (rural area)
Occupation: Poultry/Dairy worker (3years)
Stage: Right leg (stage6), Left leg (only pain)
Length of illness: 25 years

Discussion

a) Frequency of ADL

The frequency of ADL found more among outdoor and active workers

2) extreme drying
3) sunscreen
6) strenuous physical activity



* break in the skin

* working with meats and poultry without proper covers
* athletes foot

Discussion

a) Frequency of ADL

Agricultural worker

1) water (especially above 38.9°C)
4) extreme cold
6) strenuous physical activity

The higher patient's stage was, the more frequently ADL was experienced (TGA Nilmini Chandrasena et al., 2004 etc)

⇔It was not clear in this study

Discussion

b) Seasonality of ADL

The number of ADL cases was closely related to the rainfall pattern. (JOHN O. GYAPONG, 1996)

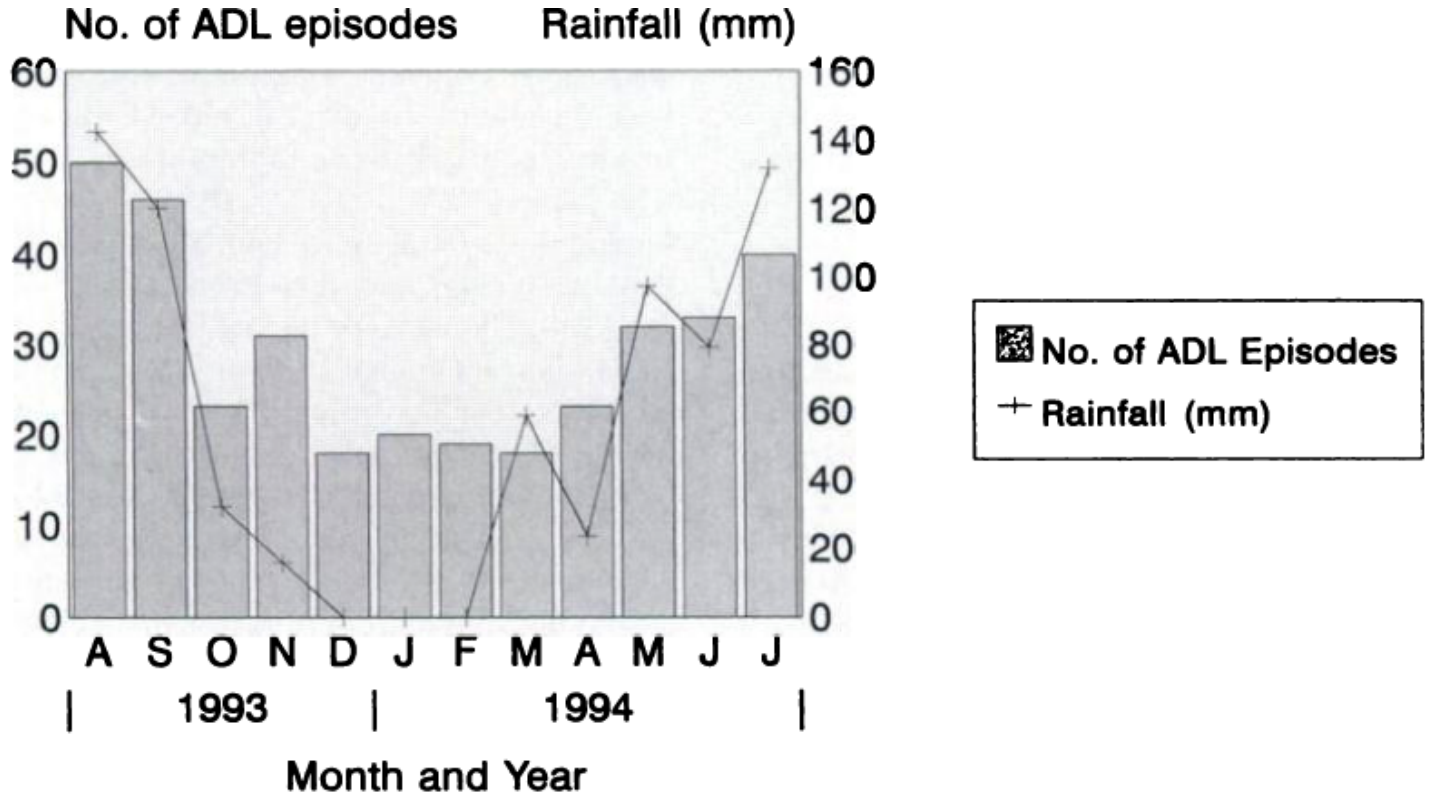


Figure4) Seasonal variation in rainfall and reported episodes of adenolymphangitis (ADL) in northern Ghana

Discussion

b) Seasonality of ADL

1) Increase of infective bites after the rains (JOHN O. GYAPONG, 1996)

AFL⇔low prevalence of microfilaria in Nilphamari

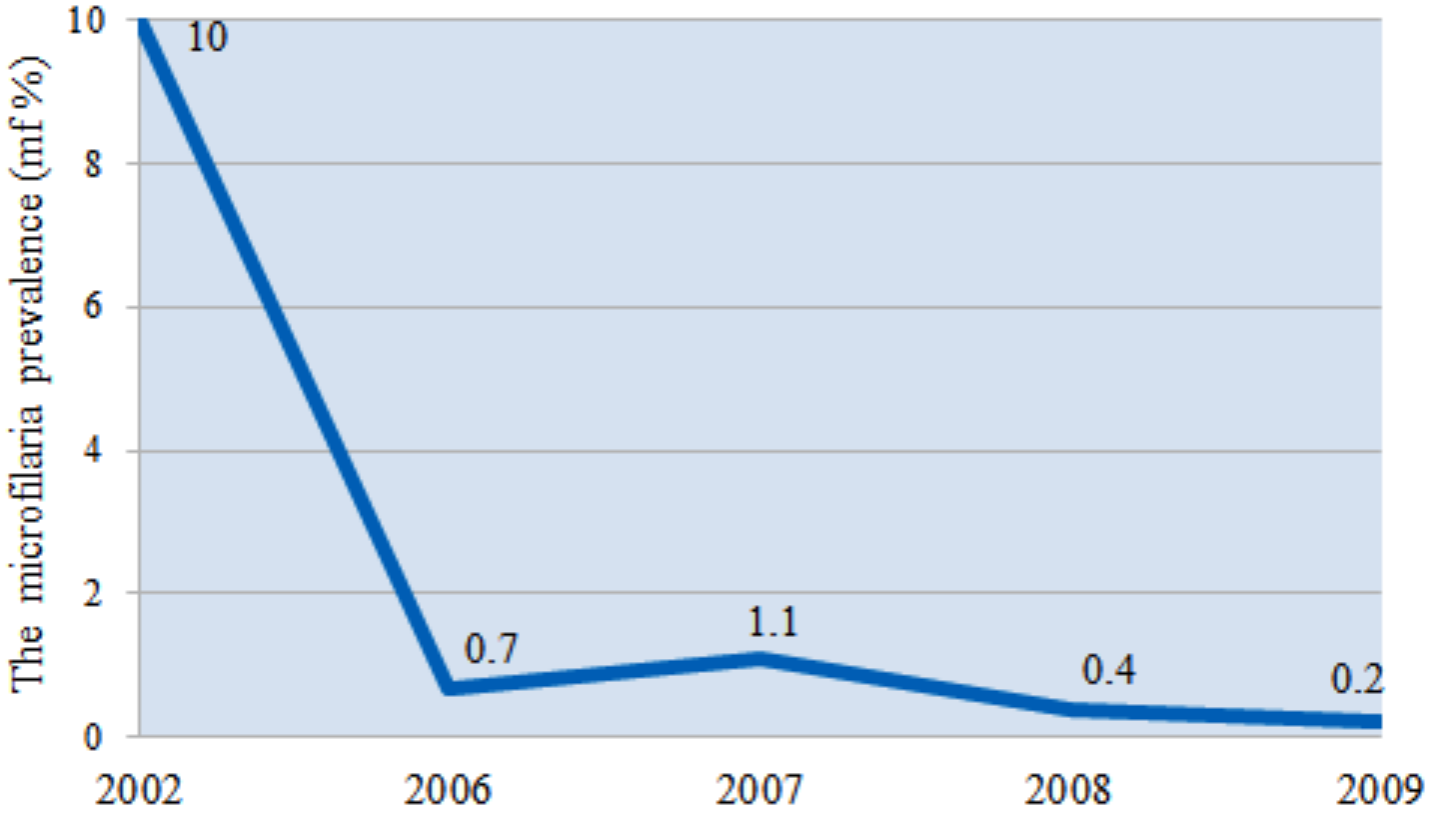


Figure5) Microfilaria prevalence (mf%) in Nilphamari

Discussion

b) Seasonality of ADL

2) Walk barefoot to work on the farms exposed to all kinds of bacterial and fungal infections.
The peak of activity in the rainy season. (JOHN O. GYAPONG, 1996)

⇔ Rural area: more ADL experiences in dry season
Urban area: more ADL experiences in rainy season

* Change the risk factors related to season or working condition between seasons
* Change the habit of putting on sandal between seasons

3) Local belief (David G. Addiss et al., 2011)

Conclusion

* Occupational type could be a risk modifier for ADL.

* Interventions to modify their working conditions could have an impact on morbidity control.

* A quantitative study is needed to show more empirically the relationship between occupation and the condition of patients due to LF.

* Further exploration of the seasonality of ADL experience is needed taking into account occupational type in rural and urban areas.

Thank you for listening